

## University of Rhode Island DigitalCommons@URI

---

Faculty Senate Committee Reports and Appendices

Faculty Senate

---

2014

# Graduate Council Report No. 2013-2014-6

University of Rhode Island Faculty Senate

Follow this and additional works at: [https://digitalcommons.uri.edu/facsen\\_comrpts](https://digitalcommons.uri.edu/facsen_comrpts)

---

### Recommended Citation

University of Rhode Island Faculty Senate, "Graduate Council Report No. 2013-2014-6" (2014). *Faculty Senate Committee Reports and Appendices*. Paper 188.

[https://digitalcommons.uri.edu/facsen\\_comrpts/188](https://digitalcommons.uri.edu/facsen_comrpts/188)[https://digitalcommons.uri.edu/facsen\\_comrpts/188](https://digitalcommons.uri.edu/facsen_comrpts/188)

This Article is brought to you for free and open access by the Faculty Senate at DigitalCommons@URI. It has been accepted for inclusion in Faculty Senate Committee Reports and Appendices by an authorized administrator of DigitalCommons@URI. For more information, please contact [digitalcommons@etal.uri.edu](mailto:digitalcommons@etal.uri.edu).

**I. 400-level courses (undergraduate courses for graduate credit)**

**Changes**

- 1) College of Arts and Sciences  
Computer Science

**CSC 402 Compiler Design:** Change in title to “Programming Language Implementation.” Change in course description to “Grammars and languages; lexical analysis and parsers; interpreters, translators, and virtual machines; symbol tables and type systems; code generation for real and virtual machines. Students will implement a number of interpreters, translators, and virtual machines for various small languages.” Change in pre-requisites to “CSC 301, and student must be admitted to a degree-granting college.”

**CSC 420 Introduction to Information Assurance:** Change in course code and number to **CSF 430**, change in method of instruction to online, and change in prerequisites to CSF 102 or permission of instructor.

**New Courses:**

- 1) College of Arts and Sciences  
Computer Science

**CSF 410 Digital Forensics I (4)**

The science, technology, procedures, and law of acquiring and analyzing digital evidence from computers and devices. Pre: CSF 102 or permission of instructor.

**CSF 414 Digital Forensics Analysis (4)**

Digital forensics analysis of evidence using the leading industrial tools. Key word searching, filtering, and report generation. Pre: CSF 410.

## **CSF 432 Introduction to Network and Systems Security (4)**

This course provides an overview of network and systems security. It provides the underlying theory of computer security. It further introduces hands-on skills and techniques that are essential to effectively secure the networks and systems of large and small organizations. Pre: CSF 102 or permission of instructor.

## **II. 500/600-level courses**

### **Changes:**

- 1) College of Human Sciences and Services  
Physical Therapy

**PHT 576 Broadening Experiences in Physical Therapy:** Change in grading method from letter grades to S/U.

**PHT 610 Evidence Based Inquiry I:** Change in method of instruction from Independent Study to Practicum, change in grading method from letter grades to S/U, and change in credits from 1-3 to 1 credit.

**PHT 620 Evidence Based Inquiry II:** Change in method of instruction from Independent Study to Practicum, and change in grading method from letter grades to S/U.

**PHT 630 Evidence Based Inquiry III:** Change in method of instruction from Independent Study to Practicum, change in grading method from letter grades to S/U, and change in credits from 1-3 to 3 credits.

**PHT 640 Evidence Based Inquiry IV:** Change in method of instruction from Independent Study to Practicum, change in grading method from letter grades to S/U, and change in credits from 1-3 to 1 credit.

- 2) College of Arts and Sciences  
Computer Science

**CSC 586 Topics in Network Forensics:** course to be deleted.

### **New Courses**

- 1) College of Engineering  
Chemical Engineering

### **CHE 570x Research Methods in Chemical Engineering (3)**

Providing experience, practice, and knowledge of Chemical Engineering research methodology: defining a research problem, writing research papers, giving seminars, finding relevant literature, applying scientific methods in practice, setting up experiments. Pre: Graduate standing or permission of instructor.

- 2) College of Human Science and Services  
Education

### **EDC 531 Teaching and Learning with Digital Technologies (3)**

This course engages students in project-based inquiry using a variety of digital tools to create challenging and engaging learning opportunities for others.

### **EDC 534 Seminar in Digital Authorship (3)**

This course includes a range of hands-on dynamic learning experiences that integrate digital media, technologies, and best practice strategies for teaching composition and authorship in a Web 2.0 world.

### 3) College of Arts and Sciences

#### Computer Science

#### **CSF 512 Advanced Digital Forensics (4)**

New and emerging techniques for identifying, acquiring, and analyzing new and emerging sources of digital evidence. Current research in digital forensics. Pre: CSF 410.

#### **CSF 516 File System Analysis (4)**

The structure and implementation of computing device file systems. Forensic analysis and reconstruction of digital evidence found in modern file systems. Pre: CSF 410.

#### **CSF 534 Advanced Topics in Network and System Security (4)**

Advanced topics in network security including intrusion detection, penetration testing, incident response, malware analysis, and risk management. Students will learn relevant skills and research emerging solutions to these problems. Pre: CSF 432.

#### **CSF 536: Advanced Intrusion Detection and Defense (4)**

Presents advanced techniques and research on intrusion detection and network defense. Topics may include network traffic analysis, intrusion analysis, machine learning techniques for intrusion detection, data mining for intrusion detection, and advanced persistent threats. Pre: CSF 432.

#### **CSF 538 Penetration Testing (4)**

Advanced techniques used in assessing the security of networks and identifying vulnerabilities. Network traffic analysis; session hijacking; social engineering; application exploitation; rootkits; network sniffers; developing threats. Pre: CSF 432.

## **Additional Curricular Matters**

### **1) College of Engineering Mechanical Engineering**

#### **Mechanical Engineering Program Changes**

Dear Dean Killingbeck:

At our departmental meeting we have approved the changes in the requirements for the MS degree in Mechanical Engineering. Previously we required our MS students to take at least one course in each of the three focus areas (as listed in our graduate student guide and URI catalog). This change was necessitated by the difficulty our MS students faced in fulfilling the requirement if the courses listed were not offered during their studies and they were forced to petition for substitutions. Since the intent was to give them broad background, we decided to allow them to take any of the courses in each of the departments core areas and make the corresponding distinctions by listing all courses as belonging to each area in our graduate student guide. Thus we need to change the wording in the URI catalog's Mechanical Engineering MS degree program requirements as follows:

Replace: "one course in each of the three department core areas from the following selections: fluid mechanics/thermal sciences—MCE 541, 545, 546, 550, 551, 552, 562, 580, 653; solid mechanics—MCE 550, 552, 561, 565, 568, 571, 576, 671, 678, 679, 680; mechanical systems—MCE 503, 504, 523, 530, 534, 538, 549, 563, 564, 566, 567, 663;"

With: "one distinct course in each of the three department core areas from the following selections: fluid mechanics/thermal sciences—MCE 541, 545, 546, 550, 551, 552, 562, 580, 653; solid mechanics—MCE 550, 552, 561, 565, 568, 571, 576, 671, 678, 679, 680; mechanical systems—MCE 503, 504, 523, 530, 534, 538, 549, 563, 564, 566, 567, 663;"

With best regards,

David Chelidze

Graduate Studies Director

Professor of Mechanical Engineering

## 2) College of Arts and Sciences

### Computer Science

#### **Computer Science Program Changes**

##### a) Notice of Change for a **Graduate Certificate in Cyber Security**

Date: 11/1/2012

#### A. PROGRAM INFORMATION

##### 1. Name of institution

University of Rhode Island

##### 2. Name of department, division, school or college

Department: Computer Science and Statistics

College: Arts and Sciences

##### 3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: Fall 2014 or when fully approved

First degree date: Spring 2016

##### 4. Intended location of the program

URI Kingston Campus

##### 5. Summary description of proposed program (not to exceed 2 pages)

(Attached)

##### 6. Signature of the President

---

David M. Dooley

## Summary Description of Changes to the Graduate Certificate in Cyber Security

a. New Course Code: We are establishing a new course code for Digital Forensics and Cyber Security courses within the Department of Computer Science and Statistics (in a separate Notice of Change form being submitted concurrently with this one). The establishment of this new course code, CSF (Cyber Security and Forensics) will require the renumbering of the courses required for this program.

b. Completion Requirements: Along with the new course code, we have also developed several new courses (concurrently proposed with this notice of change) that we would like to include in the graduate certificate program. We are modifying the requirements to allow these courses to be used.

A student wishing to receive a Graduate Certificate in Cyber Security must complete the following courses:

- CSF 430 – Introduction the Information Assurance \*
- CSF 432 – Introduction to Network and Systems Security \*\*
- CSF 534 – Advanced Topics in Network and System Security \*\*
- One of the following other courses:
  - o CSF 524 – Advanced Incident Response \*
  - o CSF 538 – Penetration Testing \*\*
  - o CSF 536 – Advanced Intrusion Detection and Defense \*

\* Existing course renumbered with new course code.

\*\* New course proposed concurrently with this Notice of Change

The existing course requirements are:

- CSC 420 – Introduction to Information Assurance
- CSC 523 – Advanced Intrusion Detection and Defense
- CSC 524 – Advanced Incident Response
- One of the following other courses:
  - o CSC 585 – Topics in Computer Forensics



o CSC 586 – Topics in Network Forensics

o CSC 519 – Computer Networks

c. Faculty: The Digital Forensics Graduate Certificate program has successfully staffed its courses through CCE special programs which is self-sustaining. We have spoken with John O’Leary, Director of CCE/Special Programs, and he is in full support of extending this model to include the proposed cyber security courses. This mechanism will allow the Cyber Security Graduate Certificate Program to be offered to students taking courses through CCE. However, in order to offer this certificate on campus for graduate students in the Computer Science MS or PhD programs, we will require additional resources. The current teaching assignments for these classes are expected to be:

3

- CSF 430 – Dr. DiPippo – in load
- CSF 432 – Dr. Henry – in load
- CSF 534 – Dr. Henry – in load
- CSF 524 – Dan Gortze (Adjunct) – per course
- CSF 538 – Kevin Bryan (Adjunct) – per course
- CSF 536 – Mike Khalfayan (Adjunct) – per course

Thus, in order for this program to be available to full-time graduate students, we will require additional faculty resources in the form of three in load courses and three per courses each year.

Cyber Security Graduate Certificate Catalog Listing:

The current listing in the catalog is as follows:

#### CYBER SECURITY GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Cyber Security is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of cyber security. For more information, including a list of required courses and an application to the program, please visit [dfcsc.uri.edu/academics/cyber\\_security](http://dfcsc.uri.edu/academics/cyber_security).

The updated listing in the catalog should be as follows:

#### CYBER SECURITY GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Cyber Security is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of cyber security. A student wishing to receive a Graduate Certificate in Cyber Security must complete the following courses:

CSF 430, 432, 534 and one of the following: CSF 524, 538, 536.

For more information, including a list of required courses and instructions on how to apply to the program, please visit [dfcsc.uri.edu/academics/cyber\\_security](http://dfcsc.uri.edu/academics/cyber_security).

#### b) Notice of Change for **Graduate Certificate In Digital Forensics**

Date: 10/30/2012

##### A. PROGRAM INFORMATION

###### 1. Name of institution

University of Rhode Island

###### 2. Name of department, division, school or college

Department: Computer Science and Statistics

College: Arts and Sciences

###### 3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: Fall 2014 or when fully approved

First degree date: May 2015

###### 4. Intended location of the program: URI Kingston

## 5. Summary description of proposed program

We are requesting two changes to the current Digital Forensics Graduate Certificate program:

- New course codes reflecting the change in digital forensics courses from a Computer Science (CSC) course code, to a Computer Forensics and Security (CSF) course code.
- Changes in the curriculum that incorporate the new courses being proposed (File System Forensics, Incident Response, Advanced Topics in Digital Forensics, Digital Forensics Analysis)

A Curriculum Sheet is attached on the next page. This degree program requires as teaching resources two per-course or in-load instructors for CSF 410 and CSF 414. Note that these courses also appear in the Digital Forensics Minor, so the resource requirement is shared by these two programs, and is not an increase in the resources currently allocated (the digital forensics program has been allocated two per-course instructors for many years now). The 500-level courses in this program will be offered through CCE Special Programs that will pay the instructors using the course revenue.

## 6. Signature of the President

---

David M. Dooley

2

Digital Forensics Graduate Curriculum Sheet

15 credits minimum required

Required Courses

- (4 credits) CSF 410 Digital Forensics I
- (4 credits) CSF 512 Advanced Digital Forensics
- (4 credits) CSF 516 File System Analysis

One course from:

- (4 credits) CSF 414 Digital Forensics Analysis
- (4 credits) CSF 524 Advanced Incident Response

3

## Digital Forensics Graduate Certificate Catalog Listing:

The current listing in the catalog is as follows:

### DIGITAL FORENSICS GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Digital Forensics is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of digital forensics. For more information, including a list of required courses and an application to the program, please visit [dfcsc.uri.edu/academics/digital\\_forensics](http://dfcsc.uri.edu/academics/digital_forensics).

The updated listing in the catalog should be as follows:

### DIGITAL FORENSICS GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Digital Forensics is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of digital forensics. A student wishing to receive a Graduate Certificate in Digital Forensics must complete the following courses:

CSF 410, 512, 516 and one of the following: CSF 414, 524.

For more information, including a list of required courses and instructions on how to apply to the program, please visit [dfcsc.uri.edu/academics/digital\\_forensics](http://dfcsc.uri.edu/academics/digital_forensics).